PATENT ABSTRACTS OF JAPAN

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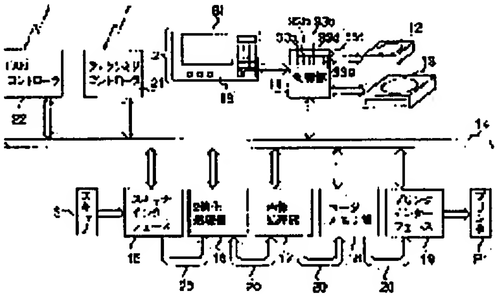
(54) IMAGE FORMING AND STORING DEVICE

(57)Abstract:
PURPOSE: To attain effective utilization of an image buffer memory by revising a capacity for each area depending on the utilizing state of each stored area.

CONSTITUTION: All storage areas of a page memory section 18 are allocated to each job class by 8 Mbytes(MB) each at application of power. The allocation is identified with a job class identification flag assigned to each block as attribute information of a block management table 33e of a control section 11. For example, an idle block in a FAX use image storage area is searched from the post position of the table 33e and the job identification flag is revised for a flag for electronic sorting. That is, when a storage area for electronic sort image is deficient and th area for FAX has a margin in all the storage areas of the section 18, the allocation is revised. Furthermore, when the deficient state is reverse, the allocation is revised as 12MB for electronic sorting and 4MB for FAX. Thus, the capacity allocated to each job of the memory section 18 is made variable in this way.



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CLAIMS

[Claim(s)]
[Claim 1] A reading means to read an image, and a storage means to memorize the image read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In the image formation storage which processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, Image formation storage characterized by providing a modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above, according to the operating condition of each field memorized by this 2nd storage means.
[Claim 2] A reading means to read an image, and a storage means to memorize the image read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the aforementioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In the image formation storage which processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, Image formation storage characterized by providing an information means to report the lack of capacity of the field assigned for every above-mentioned means of the 2nd storage of the above, according to the operating condition of each field memorized by this 2nd storage means.
[Claim 3] A reading means to read an image, and a storage means to memorize the image read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the aforementioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In the image formation storage which processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the insufficient degree of the capacity of each field in the 2nd storage of the above, and whenever [superfluous], Image formation storage characterized by providing a modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above, according to the insufficient degree of the capacity of each field memorized by this 2nd storage means, and whenever [superfluous].
[Claim 4] A reading means to read an image, and a processing means to output an image through a communication line in receiving the image supplied through a communication line ****, A storage means to memorize the image read with the above-mentioned reading means, or the image received with the above-mentioned processing means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, An image formation means to perform image formation to the image formation-ed medium to the image received with the above-mentioned processing means, or the image read from the above-mentioned storage means by the above-mentioned read-out means, An activation means to output the image read with the above-mentioned reading means or the image read from the above-mentioned storage means by the above-mentioned read-out means through a communication line with the above-mentioned processing means is provided. In

the image formation storage which processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, Image formation storage characterized by providing a modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above, according to the operating condition of each field memorized by this 2nd storage means.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] After this invention accumulates an image, FAX (facsimile) or the LAN (Local Area Network) transmitting function which can transmit, The so-called are recording transceiver function which can accumulate the image received by FAX or LAN, An input image is accumulated and sequence is controlled internally. Output printing or the electronic sort function which can be transmitted, Or it is related with image formation storage, such as an image I/O device of a digital method which the registration to FD (floppy disk)/OD (magneto-optic disk) etc., and retrieval and a print facility of an image possess either, or a copying machine of a digital method.
[0002]
[Description of the Prior Art] Conventionally, in the copying machine of the digital method possessing the are recording transmission and reception FAX, a LAN function, an electronic sort function, and image registration and a retrieval function, it is already proposed about the equipment which fixed whether it would be used for [each] a function, distributing the memory area which can memorize document image information to what kind of capacity.
[0003] the case where it transmits as a technique of equipment conventionally [these], inputting an image from a scanner since the timing of the image input from FAX transceiver processing and a scanner or image printing to a printer is separable by memorizing transceiver document information temporarily, if it relates, for example to a FAX function (the transmitting rate is generally slower) -- comparing -- the occupancy time amount of a scanner or a printer -- it can do few.
[0004] Moreover, in the copy (electronic sort copy) printed after accumulating image information, since the sequence of page printing is controllable by the interior, the function of a copy can be extended. moreover -- if an image is registered into a magneto-optic disk -- storage [of image information] - carrying -- it can do .
[0005] however -- if the field which accumulates an image is divided with for example, the object for FAX transmission and reception, and the object for an electronic sort and capacity is made immobilization -- for a user's use -- one are recording area -- frequent -- being full (full) -- it may become Moreover, when are recording area the object for FAX transmission and reception and for an electronic sort was made the share, during are recording, the case where FAX reception became impossible had produced a lot of documents in the electronic sort.
[0006]
[Problem(s) to be Solved by the Invention] However, when it divides with the object for FAX transmission and reception, and the object for an electronic sort and capacity is made immobilization when it is fixed whether it is used for every application, distributing the memory space for image storage of which to the conventional FAX transmitting carrier trust, the object for an electronic sort, LAN transmitting carrier trust, etc. for example, for a user's use, one are recording area may fill frequent. Moreover, when are recording area the object for FAX transmission and reception and for an electronic sort was made the share, during are recording, the case where FAX reception became impossible had produced a lot of documents in the electronic sort.
[0007] Then, in what shares and uses image buffer memory to various functions, according to the use condition of each function, the use field of image buffer memory can be changed and it aims at offering the image formation storage which can use image buffer memory effectively.
[0008]
[Means for Solving the Problem] A reading means by which the image formation storage of this invention reads an

image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.

[0009] A reading means by which the image formation storage of this invention reads an image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of information means to report the lack of capacity of the field assigned for every above-mentioned means of the 2nd storage of the above.

[0010] A reading means by which the image formation storage of this invention reads an image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the insufficient degree of the capacity of each field in the 2nd storage of the above, and whenever [superfluous], And according to the insufficient degree of the capacity of each field memorized by this 2nd storage means, and whenever [superfluous], it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.

[0011] The image formation storage of this invention receives a reading means to read an image, and the image supplied through a communication line, or The image read with a processing means to output an image through a communication line, and the above-mentioned reading means, Or a storage means to memorize the image received with the above-mentioned processing means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, An image formation means to perform image formation to the image formation-ed medium to the image received with the above-mentioned processing means, or the image read from the above-mentioned storage means by the above-mentioned read-out means, And an activation means to output the image read with the above-mentioned reading means or the image read from the above-mentioned storage means by the above-mentioned read-out means through a communication line with the above-mentioned processing means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.

[0012]

[Function] A reading means by which this invention reads an image, a storage means to memorize the image read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The operating condition of each field in the 2nd storage of the above is memorized, and the capacity for every field assigned for every above-mentioned means of

the 2nd storage of the above is changed according to the operating condition of each of this memorized field.
[0013]
[Example] Hereafter, one example of this invention is explained with reference to a drawing.
[0014] Drawing 2 shows the appearance of the image formation storage equipped with the are recording FAX transceiver function of this invention. In drawing, 1 is a body of equipment and the control panel 2 is formed in the top-face anterior part. The manuscript base (not shown) which consists of clear glass is established in the top face of a body 1, on this manuscript base, it serves as original cover covering and the automatic manuscript feed gear (ADF) 3 which sends one sheet-like manuscript (document) at a time automatically is formed free [closing motion]. Feed equipment 5 equipped with the sheet paper cassette 4 for supplying the form as an image formation-ed medium is formed in the pars basilaris ossis occipitalis of a body 1.
[0015] To the drawing of a body 1, a form is supplied to the right-hand side section by manual bypass, or the manual paper feed opening 6 for supplying by manual bypass is formed in it. The paper output tray 7 by which the form by which image formation was carried out is discharged is formed in the left-hand side section to the drawing of a body 1.
[0016] In the front face of a body 1, the disk insertion opening 10 for inserting the magneto-optic disk as a storage which memorizes FAX transceiver document information etc. is formed in the lower part part of a control panel 2, and magneto-optic-disk storage (not shown) is formed in this disk insertion opening 10 and the corresponding body 1.
[0017] Although neither is illustrated, in addition, in a body 1 The scanner S which reads and inputs the image (document information) of the manuscript set on the manuscript base by optical scan (reading means) And the document information memorized by the document information inputted with Scanner S and the magneto-optic disk (the 1st storage) is transmitted to a facsimile network. The facsimile controller which receives document information through a facsimile network again moreover, in the lower part within a body 1 the scanner section S or magneto-optic-disk storage (a storage means --) The laser beam printer (image formation means) Pr which carries out a record output is formed in the form which forms the image of the document information from a read-out means or a facsimile controller (or LAN controller), and is supplied from feed equipment, respectively.
[0018] The control panel section 89 equipped with the numerical keypad for inputting copy number of sheets, a FAX transmitting first-move number, etc. into a control panel 2 as the liquid crystal display 80 equipped with the touch panel 81 which constituted the front face from a transparence resistor and an electrode, the start key, the stop key, the clear key, etc. is formed.
[0019] Drawing 1 is what shows roughly the configuration of the important section of the image formation storage of this example. At the time of the manuscript image input of the scanner S interface 15 which receives the control section 11 and the image data from Scanner S which manage overall control, for example, an electronic sort, make binary the multiple-value image data from Scanner S, and compression processing is carried out. The binary-ized image memory held temporarily The page memory section of the multiple value which has the number of bits of a multiple value per [which processes the included binary-ized processing section 16, the high definition-ized processing mainly performed at the time of copy processing or output processing, enlarging or contracting, etc.] 17 or 1 pixel of image-processing sections () [which consists of RAM or a hard disk] [image storage memory;] It is constituted by the printer interface 19 which transmits image data to the 2nd storage 18 and a laser beam printer Pr, the facsimile controller 21, and the LAN controller 22.
[0020] The hard disk store 12 used for the auxiliary memory application which memorizes temporarily management information and the image data itself, such as the magneto-optic-disk store 13 for memorizing where the image data inputted from the above-mentioned control panel 2 and the scanner section S is compressed, and a magneto-optic disk, is connected to the control section 11. Such storage can also be used as an expanded memory for image storage, in order to extend memory space.
[0021] The above-mentioned control section 11, the scanner interface 15, the binary-ized processing section 16, the image-processing section 17, the page memory section 18, the printer interface 19, the facsimile controller 21, and the LAN controller 22 are connected through the system bus 14.
[0022] Contiguity connection of the scanner interface 15, the binary-ized processing section 16 and the binary-ized processing section 16, the image-processing section 17 and the image-processing section 17, the page memory section 18 and the page memory section 18, and the printer interface 19 is made through the image bus 20 different, respectively and -- different, respectively.
[0023] An exchange of a control signal and a data signal is made by the system bus 14 between a control section 11 and

each device, and the fast transfer of image data is made by the image bus 20 and -- between each device.

[0024] When this equipment carries out real-time actuation as a copying machine, this image bus 20 and -- receive the image data which comes from Scanner S with the scanner interface 15, perform high definition-ized processing and enlarging-or-contracting processing in the image-processing section 17, and perform in juxtaposition actuation of outputting to a laser beam printer Pr with the printer interface 19. Moreover, the image bus 20 unnecessary for the processing actuation at that time and the device on -- (board) will be in a passage condition. On the other hand, in the case of facsimile text file actuation, the image-processing section 17 is usually passed.

[0025] With the above-mentioned scanner S, after scanning and reading the document information on the manuscript laid on the manuscript base for every line according to the directions from a control section 11 with the line sensor (not shown) of the CCD form which consists of two or more photo detectors arranged in seriate, for example and changing the shade of an image into 8-bit digital data, it outputs to the scanner interface 15 as time series digital data with a synchronizing signal.

[0026] By the image formation section (not shown) which combined with the laser beam study system (not shown) and the form the electrophotography method which performs image formation by the above-mentioned printer Pr, for example According to the directions from a control section 11, by inputting the digital image information which is 8 bits on the printer interface 19 synchronizing with a synchronizing signal After forming an electrostatic latent image on a photo conductor drum (not shown) by the laser beam of pulse width according to the magnitude of image information, With a fixing means (not shown), it is established and the image which visualized this electrostatic latent image with the visualization means (not shown), imprinted on the form to which this visualized image is supplied from feed equipment 5 by the imprint means (not shown), and was imprinted on this form is outputted.

[0027] Drawing 3 shows the configuration of said control section 11 roughly, and consists of interfaces 36 between the main memory 33 which stores the control-panel interface 32, the various control programs, and the various management information between CPUs (central processing unit)31 and the control panels 2 which perform various kinds of control, a timer 34, magnetic disk interface 35, optical MAG disk interface 36, and a system bus 14.

[0028] File control table (2nd storage means) 33for image I/O a as a managed table of the job unit of the data memorized by main memory 33 at the page memory section 18 as image storage memory, File control table 33for electronic sort b, file control table 33for FAX c, 33d of file control tables for LAN, Block managed table 33e [the record condition of the block unit of the data memorized by the page memory section 18 is remembered to be], memory shortage, and allowances managed table 33f etc. is prepared.

[0029] File control table 33for image I/O a, file control table 33for electronic sort b, file control table 33for FAX c, and 33d of file control tables for LAN consist of pointers in which the location of a block of a file number and block managed table 33e is shown, respectively.

[0030] As shown in (a) of drawing 16 , the job classification discernment flag is formed in block managed table 33e as attribute information which shows which job classification it is assigned for every block. For example, in "S" and the object for FAX, "F" and the object for LAN are [the object for image I/O / "I" and the object for an electronic sort] "L."

[0031] Memory shortage and allowances managed table 33f, it is the table which manages the lack for every job of the image memorized by the page memory section 18, and allowances, and as shown in drawing 15 , to job classification, the count which became memory full, respectively, the amount of minimum are recording allowances, insufficient level 1, and 2 correspond, and are memorized.

[0032] Drawing 4 shows roughly the configuration of said magneto-optic-disk storage 13. The magneto-optic-disk store 13 is what writes in or reads the document information and document-retrieval information which were made compression binary through optical MAG disk interface 36 according to the directions from a control section 11. the write-in control section 42 which performs write-in control to a magneto-optic disk 41 and a magneto-optic disk 41, the read control section 43 which controls by reading to a magneto-optic disk 41, the drive motor 44 which carries out the rotation drive of the magneto-optic disk 41, the write-in control section 42, and the read control section 43 -- and A drive motor 44 is controlled, respectively and it consists of drive control sections 45 equipped with the data buffer (not shown) which stores the image data from a control section 11 temporarily.

[0033] Drawing 5 is drawing showing the internal configuration of the binary-ized processing section 16.

[0034] The binary-ized processing section 16 An interface with a system bus 14 DMA control and the address bus of CODEC53 for performing compression elongation processing of the local system bus 51 for connecting a system bus with each device of the system bus interface 50 to perform and the interior, the local image bus 52, and binary-ized image data, and the local image bus 52, The channel control of a data bus The binary page memory 56 holding the local image bus control section 54 to perform, PDC (integrated pixel density converter)55 which performs re-linear-density transform processing of the image data made binary, and the two or more pages image data made binary, FAX transmission, LAN transmission, An electronic sort sake The binary--ization-compressed image data The multiple-value image data incorporated from the transmitting image file buffer 57 for holding temporarily, the receiving image file buffer 58 which holds temporarily the binary compression image data which carried out FAX reception, and the input image bus interface 61 The pixel / cutting tool transducer 60 which performs conversion which summarizes the pixel information on the binary image data made binary in the binary-ized section 59 which makes it binary or carries out linear-density conversion, and the binary-ized section 59 per cutting tool, and its inverse transformation, the input image bus interface 61 into which the image from the image bus 20 is inputted, And it is constituted by the output image bus interface 62 which outputs an image to the image bus 20.

[0035] CODEC53 is the compression elongation section of the binary image data to binary data which carries out elongation processing about the binary compressed data which carried out compression processing in order to register the binary data on said binary page memory 56 into a magneto-optic disk 41 (preservation), or was searched from the magneto-optic disk 41.

[0036] Moreover, although not illustrated, the image storage buffer is similarly arranged LAN transmission and for the electronic sort. In addition, as for a part for the page 10 of the number of images, the transmitting image file buffer 57, the receiving image file buffer 58 and a LAN transmit receive, and the image buffer for an electronic sort have a memorizable capacity. The transmitting image file buffer 57, the receiving image file buffer 58, and other buffers consist of common RAM plurality physically. It can be concluded that it is logically divided into each application.

[0037] Moreover, binary(1 bit/(pixel))-ization is replaced with multiple-value(n bits/(pixel))-ization, such as formation of 4 values, LAN transmission and reception are treated, the thing of them can be carried out, and a multiple-value image can also be treated in an electronic sort. However, about facsimile, only a binary image is treated according to an international standard.

[0038] Drawing 6 shows the configuration of the facsimile controller 21 roughly.

[0039] The facsimile controller 21 All control The controller FCPU71 to perform, the memory section 74 the program for procedures of FAX transmission control is remembered to be, the system bus interface 70 which performs an interface with a system bus 14, the image data buffer 73 which memorizes transceiver image data temporarily, Between the image data memory 75 transceiver image data is remembered to be, DMA controller 76 which controls the DMA image transfer between said image data buffer 73 and said image data memory 75, the above-mentioned control section 11, and FCPU71, an exchange of FAX control data It consists of share I/O Port 77 for carrying out, the modem and the line control section 78 which actually perform line control by control of FCPU71, and perform strange recovery processing of a transmitted and received data, and CODEC79 which performs recoding transform processing if needed at the time of actual transceiver processing.

[0040] In addition, each of these devices are connected to FCPU71 through the internal bus 72.

[0041] Moreover, although the LAN controller 22 is not illustrated, it is the facsimile controller 21 with the same configuration fundamentally.

[0042] Drawing 7 shows the appearance of the above-mentioned control panel 2 roughly.

[0043] That is, the control panel 2 consists of a touch panel 81, a conductive pen 82, and the control panel section 89.

[0044] As the control panel section 89, copy mode, FAX mode, The mode-of-operation selection key section 83 of a file mode, The control switch sections 85 of operation, such as the numerical-keypad section 84, a start stop clearance Cancel button, etc. which input copy number of sheets, the FAX number at the time of a FAX mode of operation, etc., a scale factor, manuscript size, paper size, serial copy mode, etc. mainly The various parameter setup sections 86 at the time of copy actuation, a manuscript type, It consists of the various parameter setup sections 87 used at the time of FAX send actions, such as a character size, and abbreviated dialing assignment / numerical-keypad assignment, and the one-touch carbon button section 88 at the time of FAX transmission.

[0045] Drawing 8 shows roughly the internal configuration of the above-mentioned control panel 2.

[0046] That is, a touch panel 81 is transparent, the transparence electric conduction film with equal resistivity is usually applied to both sides of a glass substrate, and the network and electrode for the direction location detection of direction of X Y are formed in the perimeter. Since the resistance of the electric conduction film of the neighborhood will change if the conductive pen 82 of dedication describes a touch panel 81, resistance (flowing current) of a network changes. The information on this current change is outputted from a touch panel 81.

[0047] Since the main menu of the mode of operation which corresponds although not illustrated to a liquid crystal display 80 by choosing the above-mentioned mode-of-operation selection key section 83 is displayed, by operating a touch panel 81 according to a display message, a sequential indication of the menu of a layered structure is given, and the operational parameter which cannot be specified can be set up with the key/switch of the control panel section 89 by operating a touch panel 81 if needed.

[0048] The touch panel control section 91 supplies a power source to a touch panel 81, and also it reads the current (resistance) change information from a sequential-circuit network, changes it into a position coordinate, and is set as the register in a control section (buffer). The touch panel 81 has hung on the liquid crystal display 80 in fact, the display on a liquid crystal display 80 will be seen through a touch panel 81, and when the field which has a display screen with a pen 82 or a finger conversely is touched, a touch panel 81 will be touched.

[0049] The display section consists of memory 94 (video memory: VRAM) which holds image data per a liquid crystal display 80, the display control section 93, and pixel, and the display control section 93 reads the data on VRAM94 serially, and it displays them on a liquid crystal display 80. Switch-on / off control on the control panel section 89 are performed by the control panel control section 92.

[0050] Control of the above-mentioned touch panel display control panel carries out sequential execution of the program currently written in ROM or the magnetic disk of main memory 33 by CPU31 through the display control panel interface 95 of a control panel 2 altogether using RAM which is working-level month memory. In order to display a menu on a liquid crystal display 80 as main programs, when choosing an item by touching the program and the touch panel 81 which create menu screen data and are set as VRAM94, the program for identifying the item chosen from the relation between the location where it touched on the touch panel 81, and data on display, and operating a corresponding display etc. is raised.

[0051] The configuration of the storage gestalt of the image data control data on a magneto-optic disk 41 and the image data itself is shown in (a) - (e) of drawing 11 , (a) of drawing 12 and (b), and (a) of drawing 13 and (b).

[0052] When performing image filing processing in this example, filing processing of the image information shall be carried out with image attribute information required for the magneto-optic disk 41 of the following configurations at the time of a retrieval output.

[0053] (a) of drawing 11 shows the whole magneto-optic-disk 41 configuration which consists of a file management field 600 which manages the image data on a magneto-optic disk 41, and a document data area 601 containing the image data itself.

[0054] (b) of drawing 11 is what showed the configuration of the above-mentioned file management field 600. The initial defective address at the time of optical disk manufacture and initialization The initial format field 602 of a disk to store, the disk number field 603 which memorizes the disk number which is an identification number of an optical disk proper, the personal identification number field 604 which memorizes the personal identification number which is the password of the owner of the above-mentioned magneto-optic disk 41, and a magneto-optic disk 41 The initialized time The disk initialization time field 605 to memorize, the number field 606 of binders which memorizes the number of binders registered into the magneto-optic disk 41, the binder management domain 610 which stores the management information of each binder, and the document information registered into each binder It consists of documentation-management fields 630 to manage.

[0055] The detail of the above-mentioned binder management domain 610 is shown in (c) of drawing 11 . The binder management domain 610 consists of a binder management information address field 612 which memorizes the start address of the documentation-management information in each binder stored in the binder name address field 611 which memorizes the start address of the binder name stored in the below-mentioned binder title domain 614, and the documentation-management field 630, a binder attribute information field 613 which memorizes the various attributes of each binder, and a binder title domain 614 which memorizes the name of each binder.

[0056] Registration of two or more binders in drawing having shown the detail of the four above-mentioned fields is possible for (d) of drawing 11 , for example, n binders of the binder number (n) 615 are registered from binder number (1) 615 in this example. Since the field which memorizes the storing format is in the below-mentioned binder attribute 623 at the binder title domain 614, a character code, the compressed code which compressed bit image information are memorizable by making the storing format of arbitration into a binder name.

[0057] The attribute information 617 on each binder in the binder attribute information field 613 has composition as shown in (e) of drawing 11 . a binder -- an identification number -- 620 -- a binder -- identifying -- a sake -- a binder -- a proper -- a number -- it is -- this -- an example -- setting -- drawing 11 -- (-- d --) -- having been shown -- a binder -- a number -- (-- one --) -- 615 - (-- n --) -- 615 -- using it -- having .

[0058] Binder management information, such as a storing format of the binder name of a character code format or a bit image format, is memorized for a binder name by the field which memorizes the time into which the binder registration time 621 registered the binder, the field which memorizes the number of documents with which 622 text files are registered into the binder, and the binder attribute 623.

[0059] The detail of the above-mentioned documentation-management field 630 is shown in (a) of drawing 12 , (b), and (a) of drawing 13 and (b). In (a) of drawing 12 , the registration document of n binders of the binder number (n) 631 is managed from binder number (1) 631. (b) of drawing 12 is drawing explaining the detail of documentation-management field (1)631-(n)631 of each binder.

[0060] Each documentation-management field 631 of a binder unit and -- As shown in (b) of drawing 12 The document name address field 633 which stores the start address in which the document name of the document registered into the binder is stored, the documentation-management information address field 634 which memorizes the start address of the management information of the page unit for every document stored in the page information field 637, The various attributes of each document It consists of the document attribute information field 635 to memorize, a document title domain 636 which stores the document name of a registration document, a page information field 637 which memorizes the information on the page unit of a registration document, and an option information field 638 which stores the option information on each document unit.

[0061] (a) of drawing 13 is drawing having shown the detail of the six above-mentioned field (633-638), and m documents of publication-number (1) 639 - a publication number (m) 639 are registered by a diagram. It is the storing section of the document name which is inputted into the document title domain 636 using the pen 82 of dedication from a control panel 2, can store in it the bit image made binary by fixed amount of information with the predetermined control system, and is searched as document identification information at the time of registration image data retrieval. The attribute information on each document in the document attribute information field 635 becomes a configuration as shown in (b) of drawing 13 R> 3.

[0062] a document -- an identification number -- 650 -- registration -- image data -- identifying -- a sake -- registration -- the time -- a magneto-optic disk -- registration -- order -- etc. -- automatic -- assigning -- having -- a document -- a proper -- a number -- it is -- this -- an example -- setting -- drawing 13 -- (-- a --) -- having been shown -- a publication number -- (-- one --) -- 639 - (-- m --) -- 639 -- expressing .

[0063] The field which memorizes the time into which the document registration time 651 registered the document, the field where pagination 652 memorizes the pagination in a document, and the manuscript size 653 are the fields which memorize the size of a registration manuscript. Also when there is a manuscript of different size in a document, in the manuscript size 653, the code of the proper which shows that manuscript sizes differ per page is memorized, and the manuscript size of a page unit can also be stored in the page information field 637.

[0064] Which type the document name 636 of the storing format and linear density of a name of a character code format or a bit image format being and attribute information are managed by the document attribute 654.

[0065] Next, the image data flow in this example and the flow of control data are explained briefly [below] taking the case of the time of a FAX communication link processing mode. At the time of a LAN communication link and an electronic sort input, although the detail explanation about the image registration to image storage or an are recording image readout, and magneto-optic-disk 41 grade or the image retrieval from a magneto-optic disk 41, and printing at the time of a /output is omitted The image data flow at the time of the are recording to image buffer memory is almost equal to what transposed are recording of the image to the transmitting image file buffer 95 for FAX transmission to the image storage processing for [the object for an electronic sort, or for LAN transmission] the image registration to magneto-optic-disk 41 grade. It becomes a processing flow with the same said [the read-out part of the image from the FAX receiving image file buffer 96] of the flow of the image data readout from the image buffer memory for printing of the time of an electronic sort output or a LAN reception are recording image output, or the retrieval image from a magneto-optic disk 41. It is shown in drawing 9 and drawing 10 .

[0066] Although not illustrated about the internal configuration of Scanner S, the manuscript image information first put on the manuscript base is scanned for every line by the sensor which consists of two or more photo detectors arranged in the predetermined location inside scanner S by seriate, is changed into two or more bits multiple-value image data information from shade information, and is outputted to the image bus 20 through the scanner interface 15.

[0067] In this way, while being changed into the binary image data which has 1-pixel 1-bit information in the binary-ized section 59 through the input image bus interface 61 of the image bus 20 and the binary-ized processing section 16, linear-density conversion of the transmitting image data read with Scanner S is carried out as image data for FAX transmission.

[0068] In an electronic sort, both a main scanning direction and the direction of vertical scanning by 400DPI (dots per inch), 300DPI, 200DPI, and the image for FAX transmission The direction of vertical scanning by mm in 8 [// mm or] and 16 [/] 3.85 [// mm or], 7.7 [// mm or], and 15.4 [a main scanning direction //mm] As for the pixel by which linear-density conversion was carried out, all are summarized to 400DPI, 300DPI, or 200DPI for every cutting tool by the pixel / cutting tool transducer 60, as for data. the object for LAN transmission -- an electronic sort -- the same -- the direction of horizontal-scanning line vertical scanning -- It is held through the local image bus 52 at the binary page memory 56.

[0069] The transmitting image data held at the binary page memory 56 is read one by one by control of the local image bus control section 54, and it is transmitted to CODEC53 in order to carry out compression conversion at a predetermined coding method. In addition, since the binary page memory 56 has **** of two or more sheets, it can be processed in concurrency by controlling the local image bus 52 about the write-in processing to the binary page memory 56 from a pixel / cutting tool transducer 60, and the readout processing for the compression processing from the binary page memory 56.

[0070] The image data compressed by CODEC53 is temporarily held through the local image bus 54 at coincidence at the transmitting image file buffer 57. (Here, in filing, a compression image is kept by the magneto-optic disk 41 by system bus 14 course.)

Then, in response to directions of the image data transmitting initiation from the facsimile controller 21, the predetermined transmitting image data in the transmitting image file buffer 57 is sent to the facsimile controller 21 from a system bus 14 in the local image bus control section 54, the local system bus 51, and the transfer path of the system bus interface 50.

[0071] Next, the receiving image data flow at the time of carrying out FAX reception is shown below. Receiving image data is first accumulated by the notice from the facsimile controller 21 to the receiving image file buffer 58 in the transfer path of a system bus 14, the system bus interface 50, the local system bus 51, and the local image bus control section 54 noting that it mentions later, if attached to the image data flow in the facsimile controller 21.

[0072] Then, in response to the notice of output processing from a control section 11, the receiving image data which was incorporated by the receiving image file buffer 58 and which was made compression binary is transmitted to CODEC53 by control of the local image bus control section 54, and after elongation processing is transmitted to the binary page memory 56 one by one. (As for the case of a filing output, an output compression image is directly sent to CODEC53 by system bus 14 course from a magneto-optic disk 41 here.) It becomes the same processing henceforth. Since the binary page memory 56 has **** of two or more sheets, the write-in actuation to the binary page memory 56 of the elongated receiving image data and the read-out actuation to the local image bus 52 for output processing can be processed in concurrency by controlling the local image bus 52.

[0073] Before explaining the flow of the image data and control data inside the facsimile controller 21, it is attached to the control data interface between CPUs51 of the above-mentioned control section 11 and the facsimile controller 21, and explains briefly.

[0074] When notifying a communication link command to FCPU71 from a control section 11, a communications control command is written in the predetermined address of share I/O Port 77 by the control section 11 through the system bus interface 70. FCPU71 reads the control parameter in the applicable address of share I/O Port 77 in response to the write-in notice from a control section 11 by interruption etc., and performs processing according to the contents of a parameter.

[0075] The same is said of the notice of the status to the body control section 11 from FCPU71, and since FCPU71 writes a parameter in the predetermined address of share I/O Port 77, a control section 11 reads the parameter of applicable I/O Port 77 region in response to the notice by interruption, and performs processing according to the parameter.

[0076] Next, although it is the flow of the image data and control data at the time of transceiver processing of the

facsimile controller 21 interior, FCPU71 in this example shall perform FAX communications processing control according to the specification of a standard transmission protocol.
[0077] If a connection establishment directive command including transmission place FAX number information is first received from a control section 11 at the time of transmission, line connection processing with a transmission place will be performed by controlling the line control section 78 based on the received FAX number. When establishment of a connection is not performed normally here, the connection establishment improper status is notified to a control section 11.
[0078] If a circuit is connected, by controlling the line control section 78, the signal from the above-mentioned receiving station will be received, and partner clearance capacity and the notice of the completion status of connection processing will be notified to a control section 11. This control section 11 that carried out status reception judges the transmitting conditions within receiving station clearance capacity, sets a transmitting function including the existence of recoding conversion and re-linear-density conversion as the information field of a pictorial communication directive command, and notifies it to FCPU71.
[0079] FCPU71 which received the notice of the transmitting conditions by the side of a sending station notifies it to a receiving station side as a digital instruction signal. On the other hand, a control section 11 starts the transfer to the facsimile controller 21 of the transmitting image data for 1 page as transmitting initiation preparation.
[0080] Since the transmitting document data currently beforehand held by DMA control in the predetermined region of the transmitting image file buffer 57 of the binary-ized processing section 16 are written in the image data buffer 73 through the system bus interface 70, FCPU71 controls DMA controller 76 and, as for a control section 11, transmits the transmitting image data to an image data memory 75 at any time.
[0081] Moreover, after carrying out reconversion processing by CODEC53 in the facsimile controller 21 at the image data specification at the time of transmission before transmitting to an image data memory 75, when having received recoding for transmission, or directions of re-linear-density conversion from this tense section 11, it will transmit to an image data memory 75.
[0082] FCPU71 which received the reception preparation acknowledge signal from the receiving station reads the document data transmitted to the image data memory 75 one by one, and by controlling the line control section 78, line control of it is carried out and it transmits image data. Since the control parameter which directs the existence of page termination or the following page is notified to FCPU71 at any time from a control section 11 when a transmitting document is plurality, transmission of above-mentioned document data is repeatedly performed in a page unit.
[0083] FCPU71 controls the line control section 78 by receiving a connection release command from a control section 11, a cutting instruction signal is sent out to a circuit, and notifying-to control section 11-the connection release status transmitting processing is ended.
[0084] Reception is started because the line control section 78 detects arrival of the mail and gives an interruption notice at FCPU71. Since FCPU71 transmits the command which judges [whether a control section 11 has an opening in an image storage buffer, and] whether it is in a FAX ready-for-receiving ability condition by notifying the arrival-of-the-mail status to a control section 11, and notifies connection establishment authorization / disapproval to FCPU71, FCPU71 advances reception, when the command is judged and reception is permitted. When it cannot receive, line disconnection processing is performed.
[0085] After [FCPU71] connection establishment notifies local station clearance capacity to a sending station. After receiving the above-mentioned signal normally and holding receipt information, the reception preparation acknowledge signal with which reception of image data is permitted is sent out to a sending station, and FCPU71 controls the line control section and receives image data one by one.
[0086] In order to manage the coding method of image attributes, such as size for every receiving page of receiving image data, and a receiving image in this example, received data are accumulated in the image data memory 75, performing recoding conversion. FCPU71 notifies the status which permits page reception to a control section 11 with the page attribute of a receiving image for every completion of page reception.
[0087] A control section 11 secures the receiving image file buffer 58 (start address) of the storage place of receiving image data in response to reception initiation authorization, and transmits a receiving image transfer initiation command to FCPU71. FCPU71 controls DMA controller 76 in response to the notice of a transfer initiation command, and transmits the receiving image data in an image data memory 75 to the image data buffer 73.
[0088] On the other hand, a control section 11 reads the receiving image data in the image data buffer 73 through the

system bus interfaces 70 and 50 in response to the notice of interruption which directs data transfer initiation, and it carries out data transfer one by one to the predetermined field of the receiving image file buffer 58 secured beforehand. In the case of two or more pages reception, reception for every page is performed by the same processing.

[0089] Reception is ended, when FCPU71 receives a procedure terminate signal from a sending-station side and answers a transmitting side in the affirmation signal. A control section 11 receives the notice of reception termination by the connection release status from FCPU71. Cutting processing of an actual circuit is performed by the transmitting side.

[0090] As mentioned above, it is explanation about FAX transmission of the accumulated image in this example, FAX reception, and the image data flow about image storage. The same is said of LAN transmission of an are recording image, or are recording of a LAN receiving image.

[0091] The FAX transceiver procedure in this example is explained.

[0092] First, if FAX mode is chosen by the mode-of-operation selection key on a control panel 2, since default transmitting manuscript input conditions (manuscript read concentration, a manuscript class, transmitting linear density, etc.) will be displayed on a control panel 2, modification is directed with a control panel 2 to change an input condition, a transmission place FAX number is chosen, an input or when being registered beforehand, and the communicate mode is chosen.

[0093] For example, in confidential transmission, in the mail box communication link by the input of a confidential password, a mail box number is inputted.

[0094] A parameter [required for transmitting processing as mentioned above] of operation is set up, a transmitting manuscript is set to a manuscript base, by carrying out the depression of the start button on a control panel 2, Scanner S operates and input process of a 1 page to two or more pages transmitting manuscript is performed. An input-process result, input image information, and the transmitting conditions at the time of transmission are managed in the predetermined field on a work piece RAM until transmitting processing is completed. In addition, since internal processing at the time of transmitting processing was explained previously, it omits here.

[0095] In this example, since memory are recording transmission is performed, after the input process of a transmitting image is completed, FAX line connection processing is started at suitable time of day.

[0096] If FAX circuits, such as after image input-process termination and under reception, are generally vacant, line connection processing will be started after input process. If transmitting time of day is specified at the time of a manuscript input, a line connection will be started at the time of day.

[0097] After a line connection performs FAX transmitting processing by the approach described previously.

[0098] Moreover, same actuation is performed also about actuation of LAN transmission.

[0099] Next, it explains using the example of allocation of the binary page memory which shows the management method of the page memory section 18 as memory for image storage to (1) - (4) of drawing 14 , the out-of-memory allowances managed table 33f example of storage which shows drawing 15 , and the example of storage of block managed table 33e which shows drawing 16 (a), (b), and drawing 17 (a) and (b).

[0100] The area of the page memory section 18 used as memory for image storage is divided into the field to which 1 block consists of 16 K bytes, and block management is carried out by the above-mentioned block managed table 33e. It is also possible for size not to be limited to 16K but to set it as 32K and 64K.

[0101] All the are recording fields of the page memory section 18 are assigned for every 8-megabyte (MB) job classification at the time of power-source ON, as shown in (1) of drawing 14 R> 4, and (a) of drawing 16 . [every] It can be identified now with one job classification discernment flag to each block as attribute information on block managed table 33e which job classification it is assigned. For example, "the object for F:FAX", the "object for I:image I/O", the "object for an S:electronic sort", etc. are prepared.

[0102] In (a) of drawing 16 , if the Ruhr of the after-mentioned [using it for the image storage area for / 2 megabytes / the electronic sort of the image storage area for FAX] is determined, the block of NULL of the image storage area for FAX will be searched from the back of block managed table 33e, and the job discernment flag of 128 blocks (two mega / 16 K bytes) of NULL will be changed into "S" from "F" (refer to (b) of drawing 16).

[0103] That is, when all the are recording fields of the page memory section 18 run short of the image storage area for for example, an electronic sort and allowances are in the image storage area for FAX, allocation is changed as shown in (2) of drawing 14 R> 4.

[0104] Furthermore, when the image storage area for an electronic sort runs short and allowances are in the image storage area for FAX, as shown in (3) of drawing 14 , allocation is changed into 4 megabytes for the image storage area of the for 12 megabytes and for FAX in the image storage area for an electronic sort.

[0105] Furthermore, when the image storage area for an electronic sort runs short and the image storage area for FAX also runs short, as shown in (4) of drawing 14 , allocation is changed into 4 megabytes for the image storage area of the for 6 megabytes and for image I/O in the image storage area of the for 14 megabytes and for FAX in the image storage area for an electronic sort.

[0106] By this approach, capacity assigned for every job of the page memory section 18 is made adjustable.

[0107] Next, the flow chart which shows the image storage memory of each job, i.e., the operation of the page memory section 18, to drawing 18 and drawing 19 explains. Drawing 18 is an image storage routine to the image storage area used in case each job is image storage. By the image storage routine, if the empty (NULL) area of block managed table 33e is searched from a head for every job classification and NULL is found, a corresponding block will be used.

[0108] And as shown in (a) of drawing 17 , and (b), this NULL flag is changed into END and the block number which newly used the flag which was END until now is set up.

[0109] Thereby, let a block be the link information of in what kind of sequence to use it. When there is 30 K bytes of image data greatly, reservation of a block is repeated 3 times, and the block which were a total of three NULL(s) is newly used.

[0110] On the other hand, it goes into the update routine of out of memory and the amount of minimum are recording allowances noting that it is in the condition of the memory full whose image storage is impossible any more, when the block of NULL is not able to be searched. Here, 1 **** of the counts of the memory full corresponding to the memory shortage and the allowances managed table 33f job classification which are shown in drawing 15 is carried out, a memory availability (block count x16 K byte of NULL) is calculated further, and when smaller than the old amount of minimum are recording allowances, the amount of minimum are recording allowances is updated.

[0111] Although explanation is omitted about deletion of an are recording image, a block is realized by releasing conversely and transposing to NULL. Out of memory and the amount of minimum image storage allowances remain as it is.

[0112] Next, it explains, referring to the flow chart which was set up as mentioned above and which shows out of memory and the Ruhr which changes an image attribute to drawing 20 using the information on the amount of allowances, in order to tell a user about an insufficient memory space, or for the memory space for every job classification to reset or to save are recording memory. There is drawing 20 by the memory space resetting routine, and it includes image attribute modification and a notice to a user.

[0113] This routine is started [every period beforehand set up by the program, and] weekly. By this routine, first, the information out of memory for every job classification is read from memory shortage and allowances managed table 33f, and it distinguishes whether it is over the level (insufficient level 1, insufficient level 2) set up beforehand. It is set as the capacity (this example 8 megabytes) which insufficient information was assigned to by 0 when having not exceeded, and it was able to assign the amount of the minimum allowances for every job classification.

[0114] on the other hand, when the count of insufficient is over level, the n byte escape (this example respectively 1 megabyte, 2 megabytes) of the m bytes should be carried out with insufficient level -- ** -- it judges and a message is outputted on a control panel 2.

[0115] Next, the amount of minimum are recording allowances searchs m and n bytes or more of job classification, respectively. If it is m and n bytes or more, respectively, memory space will be extended / reduced by the above-mentioned memory space resetting approach, and it will be set as the capacity which insufficient information was assigned by 0 and was newly able to assign the amount of the minimum allowances for every job classification.

[0116] When there are not m and the minimum allowances accumulated dose of n bytes or more, respectively, after insufficient memory, on the other hand, asks a user whether to drop and process resolution from a degree about the job beyond level, resetting of memory space is not carried out but insufficient information is set as the capacity to which the amount of the minimum allowances is assigned by 0.

[0117] The facsimile which can be transmitted or the transmitting function by LAN as described above, after accumulating an image, The so-called are recording transceiver function which can accumulate facsimile or the image received by LAN, An input image is accumulated and sequence is controlled internally. Output printing or the electronic sort function which can be transmitted, In the registration to the floppy disk/magneto-optic disk of an image, the image I/O device of the digital method possessing retrieval and the print facility of the image from them, or the copying machine of a digital method Those FAX transmit receives, a LAN transmit receive, the insufficient degree of the memory space for image storage which each uses with an electronic sort copy, An allowances degree is measured, reset memory space from this measured insufficient degree and an allowances degree, a user is notified of the insufficient degree of memory space, or an image attribute is changed.

[0118] That is, an insufficient degree is prepared in each field to each job of image storage memory, the insufficient degree of image storage memory is measured, and allocation of image storage memory and an image input method (image attribute) are made adjustable according to this measurement result.

[0119] The memory space which should notify and add the insufficient degree of the image storage memory to a user is notified.

[0120] Moreover, each field of image storage memory has an insufficient degree and whenever [superfluous] for every classification of a job, the insufficient degree of each field of image storage memory and whenever [superfluous] are measured, from this measured insufficient degree and whenever [superfluous], the allotment of the image storage memory for every job classification is made adjustable, and automatic resetting is carried out periodically.

[0121] Moreover, each field of image storage memory has an insufficient degree and whenever [superfluous] for every classification of a job, the insufficient degree of each field of image storage memory and whenever [superfluous] are measured, the image attribute for every job classification is made adjustable from this measured insufficient degree and whenever [superfluous], and an image attribute is set up periodically.

[0122] Moreover, within a fixed period, the count used as the memory full for every classification of a job is measured, and the capacity which should be added from the memory important point addition table which set up the insufficient memory to the job beforehand as compared with the threshold (count) set up beforehand is read, and periodically, whenever out of memory (memory important point addition capacity), it displays [******] on a control panel, or it notifies through a communication line.

[0123] Moreover, memory measures the capacity (intact) in which the complementary was, and considers as whenever [over the job / memory allowances], and the memory allocation capacity of a high job whenever out of memory is made to increase within a fixed period.

[0124] Moreover, whenever out of memory, as an attribute of the image accumulated from whenever [memory allowances], set up resolution, the number of bits/pixel is set up, or both resolution, and the number of bits/pixel are set up.

[0125] The condition that it is more few and image storage memory is vacant in it being in a full condition (memory full) about the image storage memory which accumulates by this the image covering two or more pages treated by FAX communication facility, the filing function to a magneto-optic disk or a floppy disk, a copy function, etc. (a complementary is) can be lessened, and it can make it possible to gather the employment effectiveness of image storage memory.

[0126]

[Effect of the Invention] As explained in full detail above, in what shares and uses image buffer memory to various functions according to this invention, the use field of image buffer memory can be changed according to the use condition of each function, and the image formation storage which can use image buffer memory effectively can be offered.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] After this invention accumulates an image, FAX (facsimile) or the LAN (Local Area Network) transmitting function which can transmit, The so-called are recording transceiver function which can accumulate the image received by FAX or LAN, An input image is accumulated and sequence is controlled internally. Output printing or the electronic sort function which can be transmitted, Or it is related with image formation storage, such as an image I/O device of a digital method which the registration to FD (floppy disk)/OD (magneto-optic disk) etc., and retrieval and a print facility of an image possess either, or a copying machine of a digital method.

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PRIOR ART

[Description of the Prior Art] Conventionally, in the copying machine of the digital method possessing the are recording transmission and reception FAX, a LAN function, an electronic sort function, and image registration and a retrieval function, it is already proposed about the equipment which fixed whether it would be used for [each] a function, distributing the memory area which can memorize document image information to what kind of capacity.
[0003] the case where it transmits as a technique of equipment conventionally [these], inputting an image from a scanner since the timing of the image input from FAX transceiver processing and a scanner or image printing to a printer is separable by memorizing transceiver document information temporarily, if it relates, for example to a FAX function (the transmitting rate is generally slower) -- comparing -- the occupancy time amount of a scanner or a printer -- it can do few.
[0004] Moreover, in the copy (electronic sort copy) printed after accumulating image information, since the sequence of page printing is controllable by the interior, the function of a copy can be extended. moreover -- if an image is registered into a magneto-optic disk -- storage [of image information] - carrying -- it can do .
[0005] however -- if the field which accumulates an image is divided with for example, the object for FAX transmission and reception, and the object for an electronic sort and capacity is made immobilization -- for a user's use -- one are recording area -- frequent -- being full (full) -- it may become Moreover, when are recording area the object for FAX transmission and reception and for an electronic sort was made the share, during are recording, the case where FAX reception became impossible had produced a lot of documents in the electronic sort.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained in full detail above, in what shares and uses image buffer memory to various functions according to this invention, the use field of image buffer memory can be changed according to the use condition of each function, and the image formation storage which can use image buffer memory effectively can be offered.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, when it divides with the object for FAX transmission and reception, and the object for an electronic sort and capacity is made immobilization when it is fixed whether it is used for every application, distributing the memory space for image storage of which to the conventional FAX transmitting carrier trust, the object for an electronic sort, LAN transmitting carrier trust, etc. for example, for a user's use, one are recording area may fill frequent. Moreover, when are recording area the object for FAX transmission and reception and for an electronic sort was made the share, during are recording, the case where FAX reception became impossible had produced a lot of documents in the electronic sort.
[0007] Then, in what shares and uses image buffer memory to various functions, according to the use condition of each function, the use field of image buffer memory can be changed and it aims at offering the image formation storage which can use image buffer memory effectively.

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MEANS

[Means for Solving the Problem] A reading means by which the image formation storage of this invention reads an image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.
[0009] A reading means by which the image formation storage of this invention reads an image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of information means to report the lack of capacity of the field assigned for every above-mentioned means of the 2nd storage of the above.
[0010] A reading means by which the image formation storage of this invention reads an image, a storage means to memorize the image in which it was read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The 2nd storage means which memorizes the insufficient degree of the capacity of each field in the 2nd storage of the above, and whenever [superfluous], And according to the insufficient degree of the capacity of each field memorized by this 2nd storage means, and whenever [superfluous], it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.
[0011] The image formation storage of this invention receives a reading means to read an image, and the image supplied through a communication line, or The image read with a processing means to output an image through a communication line, and the above-mentioned reading means, Or a storage means to memorize the image received with the above-mentioned processing means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, An image formation means to perform image formation to the image formation-ed medium to the image received with the above-mentioned processing means, or the image read from the above-mentioned storage means by the above-mentioned read-out means, And an activation means to output the image read with the above-mentioned reading means or the image read from the above-mentioned storage means by the above-mentioned read-out means through a communication line with the above-

mentioned processing means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed According to the operating condition of each field memorized by the 2nd storage means which memorizes the operating condition of each field in the 2nd storage of the above, and this 2nd storage means, it consists of modification means to change the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above.

[Translation done.]

* NOTICES *

JPO and NCIPI are not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

OPERATION

[Function] A reading means by which this invention reads an image, a storage means to memorize the image read with this reading means to the 1st storage, The image read with the read-out means which reads the image memorized by this storage means, and the above-mentioned reading means, Or an image formation means to perform image formation to the image formation-ed medium to the image read from the above-mentioned storage means by the above-mentioned read-out means is provided. In what processes using the predetermined field of the 2nd storage assigned for every above-mentioned means in case each above-mentioned means is performed The operating condition of each field in the 2nd storage of the above is memorized, and the capacity for every field assigned for every above-mentioned means of the 2nd storage of the above is changed according to the operating condition of each of this memorized field.

[Translation done.]

JAPANESE [JP,07-273957,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

* NOTICES *

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3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The block diagram showing roughly the configuration of the important section of the image formation store in one example of this invention.
[Drawing 2] The external view of image formation storage.
[Drawing 3] The block diagram showing the configuration of a control section roughly.
[Drawing 4] The block diagram showing the configuration of a magneto-optic-disk store roughly.
[Drawing 5] The block diagram showing the internal configuration of the binary-ized processing section.
[Drawing 6] The block diagram showing the internal configuration of a facsimile controller.
[Drawing 7] The external view showing the configuration of the control-panel section roughly.
[Drawing 8] The block diagram showing the internal configuration of a control panel roughly.
[Drawing 9] Drawing showing the relation of image input are recording and transmission, and registration.
[Drawing 10] Drawing showing the relation between reception, retrieval image storage, and image read-out printing.
[Drawing 11] Drawing showing the configuration of the file format of a magneto-optic disk.
[Drawing 12] Drawing showing the configuration of the file format of a magneto-optic disk.
[Drawing 13] Drawing showing the configuration of the file format of a magneto-optic disk.
[Drawing 14] Drawing showing the example of allocation of the page memory section.
[Drawing 15] Drawing showing the example of storage of an out-of-memory allowances managed table.
[Drawing 16] Drawing showing the example of storage of a block managed table.
[Drawing 17] Drawing showing the example of storage of a block managed table.
[Drawing 18] The flow chart for explaining the operation of the page memory section.
[Drawing 19] The flow chart for explaining the operation of the page memory section.
[Drawing 20] The flow chart for explaining a memory space resetting routine.
[Description of Notations]
11 -- Control section
S -- Scanner
16 -- Binary-ized processing section
18 -- Page memory section
Pr -- Laser beam printer
21 -- Facsimile controller
22 -- LAN controller

[Translation done.]

* NOTICES *

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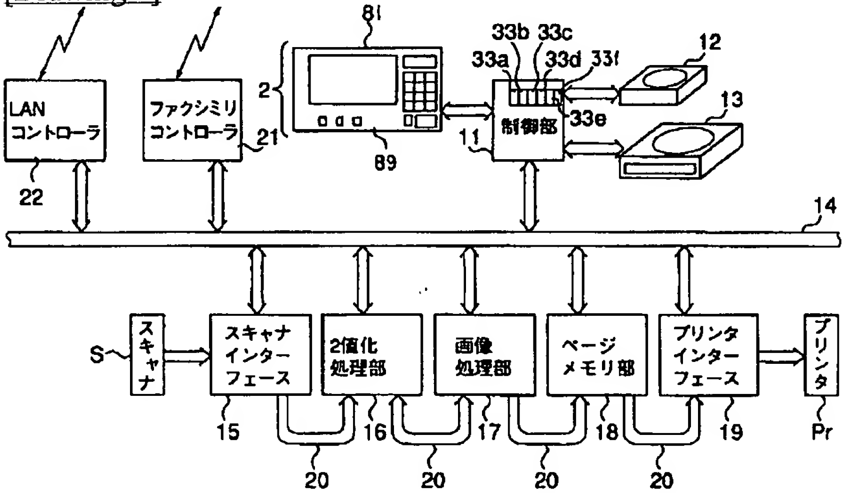
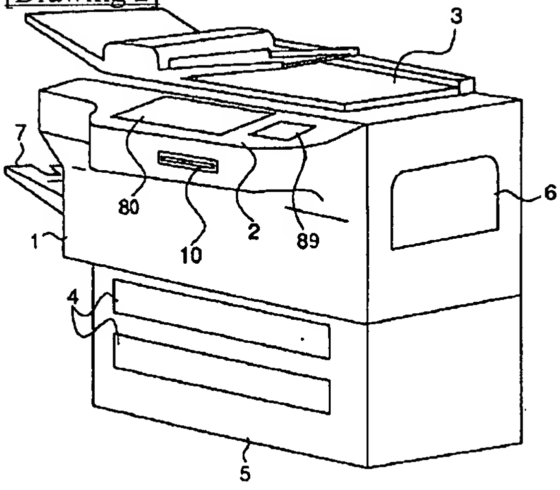
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

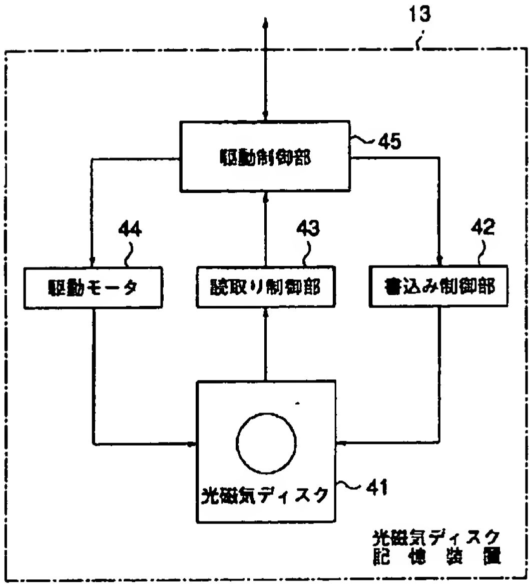
[Drawing 1]


81
33b 33c
33a
33d 33f
12
2
LAN
コントローラ
ファクシミリ
コントローラ
21
89
11
制御部
33e
13
22
14
S
スキャナ
スキャナ
インター
フェース
2値化
処理部
画像
処理部
ページ
メモリ部
プリンタ
インター
フェース
プリンタ
15
16
17
18
19
Pr
20
20
20
20

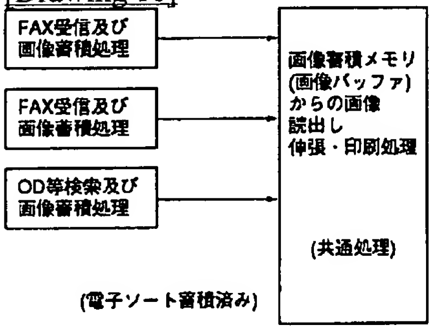
[Drawing 2]


3
7
6
80
2
89
1
10
4
5

[Drawing 4]

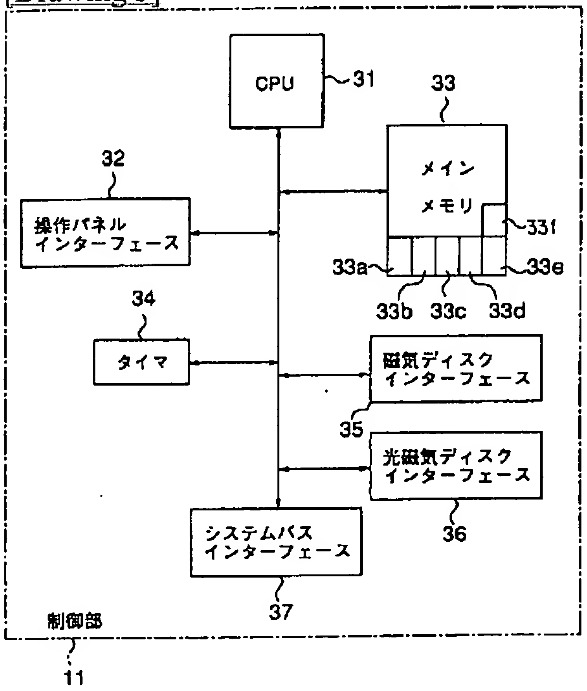

13
駆動制御部
45
44
43
42
駆動モータ
読取り制御部
書込み制御部
光磁気ディスク
41
光磁気ディスク
記憶装置

[Drawing 10]

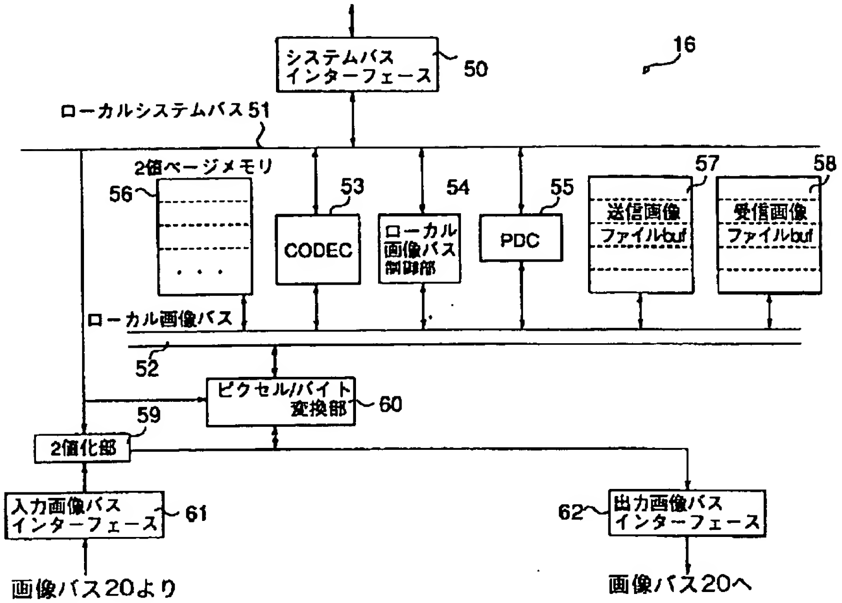

FAX受信及び
画像蓄積処理
FAX受信及び
画像蓄積処理
OD等検索及び
画像蓄積処理
画像蓄積メモリ
(画像バッファ)
からの画像
読出し
伸張・印刷処理
(共通処理)
(電子ソート蓄積済み)

受信、検索画像蓄積および画像読み出し印刷の関係

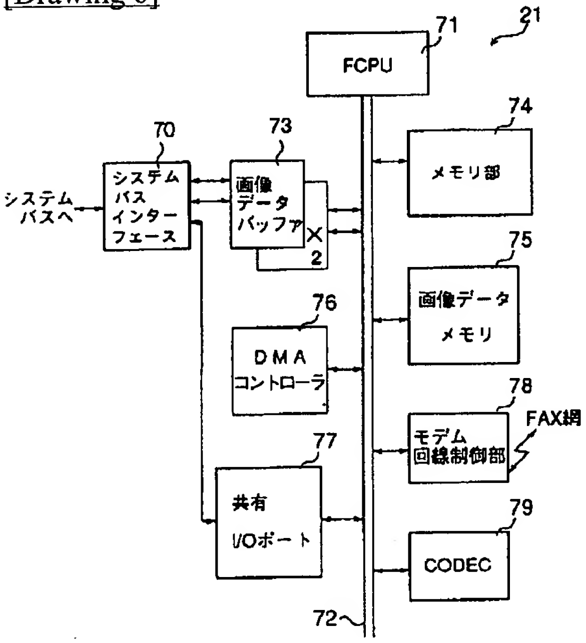
[Drawing 3]


CPU
31
33
メイン
メモリ
331
32
操作パネル
インターフェース
33a
33e
33b
33c
33d
34
タイマ
磁気ディスク
インターフェース
35
光磁気ディスク
インターフェース
36
システムバス
インターフェース
37
制御部
11

[Drawing 5]

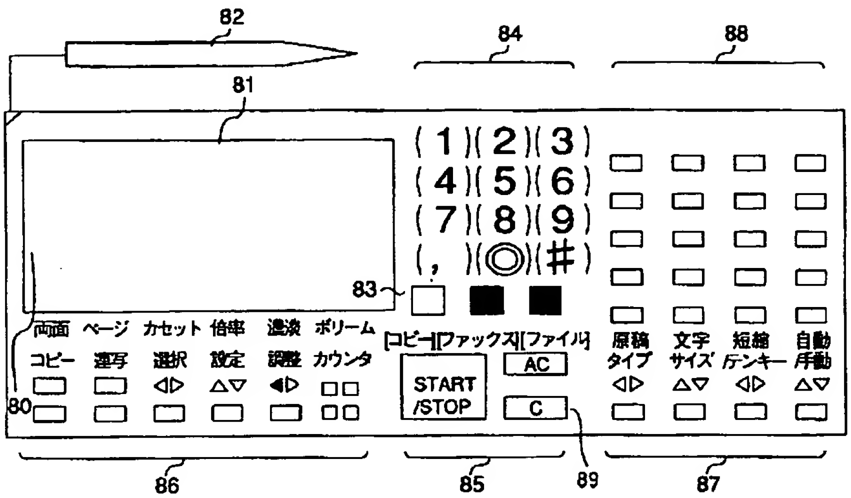

システムバス14へ
16
システムバス インターフェース
50
ローカルシステムバス51
2値ページメモリ
56
53
CODEC
54
ローカル画像バス制御部
55
PDC
57
送信画像ファイルbuf
58
受信画像ファイルbuf
ローカル画像バス
52
ピクセル/バイト変換部
60
59
2値化部
入力画像バス インターフェース
61
62
出力画像バス インターフェース
画像バス20より
画像バス20へ

[Drawing 6]

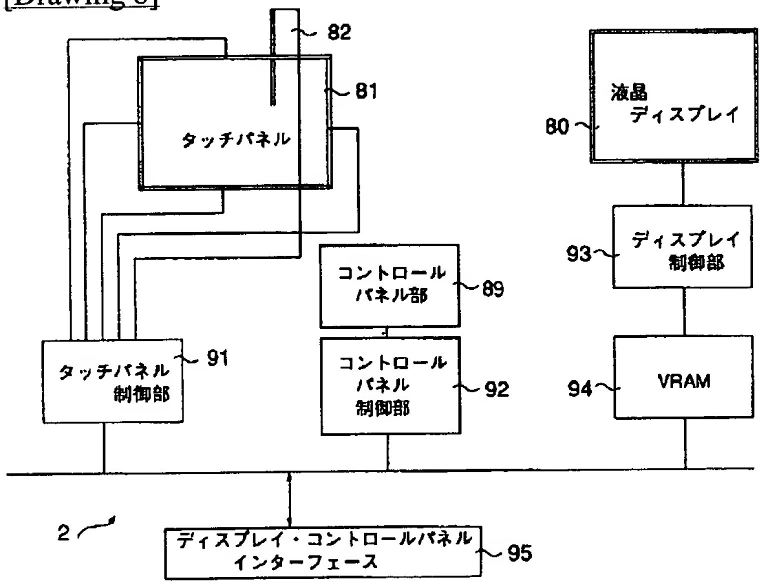

21
FCPU
71
70
73
74
システムバスへ
システムバス インターフェース
画像データバッファ
×2
メモリ部
75
画像データメモリ
76
DMA コントローラ
78
FAX網
モデム回線制御部
77
共有 I/Oポート
79
CODEC
72

(b)

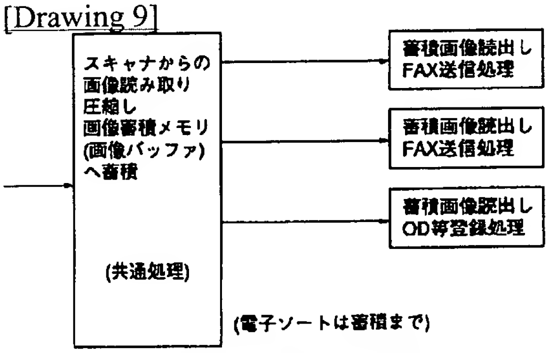
[Drawing 7]


82
84
88
81
(1)(2)(3)
(4)(5)(6)
(7)(8)(9)
(,)(◎)(#)
83
両面 コピー
ページ 連写
カセット 選択
倍率 設定
濃淡 調整
ボリーム カウンタ
[コピー][ファックス][ファイル]
START /STOP
AC
C
原稿 タイプ
文字 サイズ
短縮 /テンキー
自動 /手動
80
86
85
89
87

[Drawing 8]

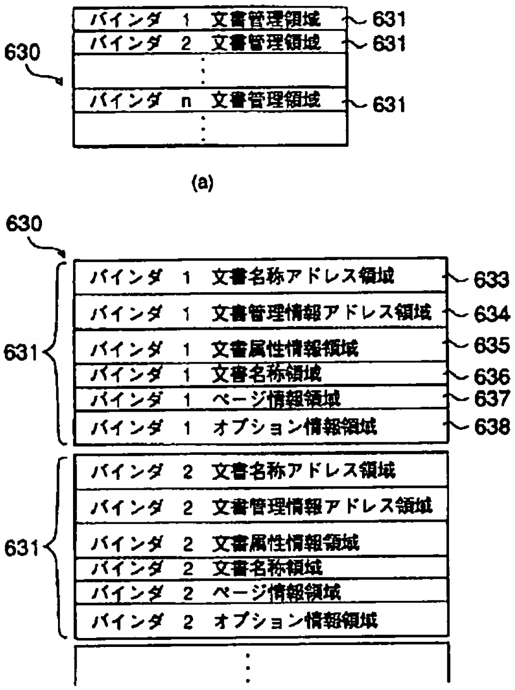

82
81
タッチパネル
80
液晶 ディスプレイ
93
ディスプレイ 制御部
コントロール パネル部
89
91
タッチパネル 制御部
コントロール パネル 制御部
92
94
VRAM
2
ディスプレイ・コントロールパネル インターフェース
95

[Drawing 9]


スキャナからの 画像読み取り 圧縮し 画像蓄積メモリ (画像バッファ) へ蓄積
(共通処理)
蓄積画像読出し FAX送信処理
蓄積画像読出し FAX送信処理
蓄積画像読出し OD等登録処理
(電子ソートは蓄積まで)

画像入力蓄積および送信、登録の関係

[Drawing 12]


630
バインダ 1 文書管理領域
631
バインダ 2 文書管理領域
631
バインダ n 文書管理領域
631
630
631
バインダ 1 文書名称アドレス領域
633
バインダ 1 文書管理情報アドレス領域
634
バインダ 1 文書属性情報領域
635
バインダ 1 文書名称領域
636
バインダ 1 ページ情報領域
637
バインダ 1 オプション情報領域
638
631
バインダ 2 文書名称アドレス領域
バインダ 2 文書管理情報アドレス領域
バインダ 2 文書属性情報領域
バインダ 2 文書名称領域
バインダ 2 ページ情報領域
バインダ 2 オプション情報領域

(a)

(b)

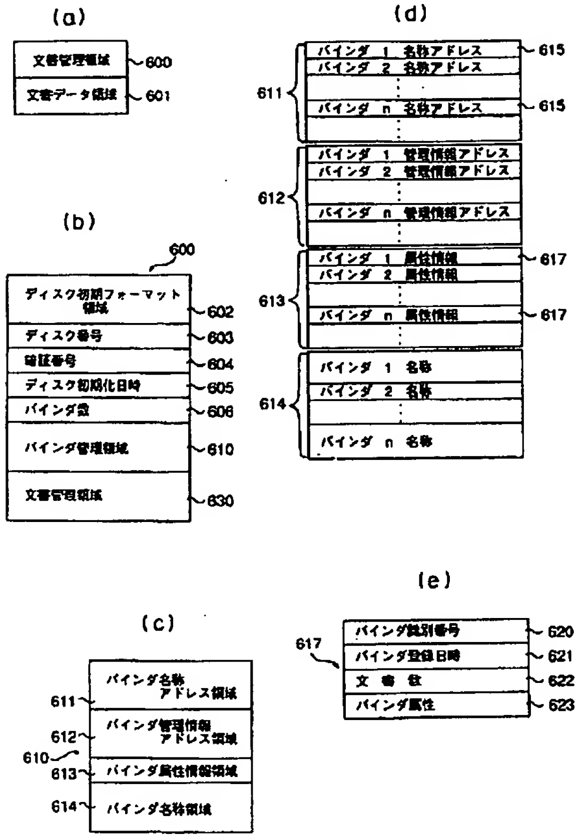
[Drawing 15]

メモリ不足、余裕管理テーブル

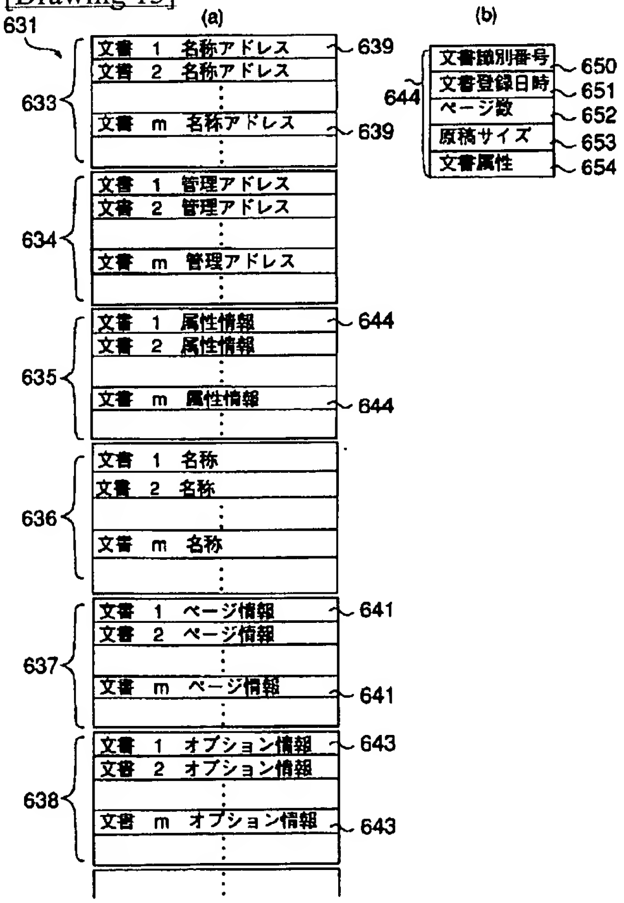
ジョブ種別	メモリフルになった回数 (一定期間に)	最小蓄積余裕量	不足 レベル1	レベル1
電子ソート	10	0MB	3	6
FAX蓄積	2	4MB	3	6
LAN蓄積	0	3MB	3	6
OD蓄積	0	2MB	5	10
画像入出力	0	1MB	3	6

33a

[Drawing 11]

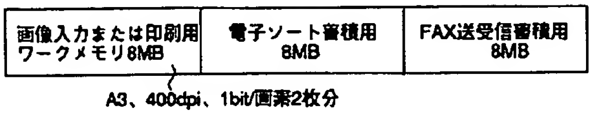

(a)
文書管理領域
600
文書データ領域
601
(b)
600
ディスク初期フォーマット領域
602
ディスク番号
603
暗証番号
604
ディスク初期化日時
605
バインダ数
606
バインダ管理領域
610
文書管理領域
630
(c)
611
バインダ名称アドレス領域
612
バインダ管理情報アドレス領域
610
613
バインダ属性情報領域
614
バインダ名称領域
(d)
611
バインダ 1 名称アドレス
615
バインダ 2 名称アドレス
バインダ n 名称アドレス
615
612
バインダ 1 管理情報アドレス
バインダ 2 管理情報アドレス
バインダ n 管理情報アドレス
613
バインダ 1 属性情報
617
バインダ 2 属性情報
バインダ n 属性情報
617
614
バインダ 1 名称
バインダ 2 名称
バインダ n 名称
(e)
617
バインダ識別番号
620
バインダ登録日時
621
文 書 数
622
バインダ属性
623

[Drawing 13]

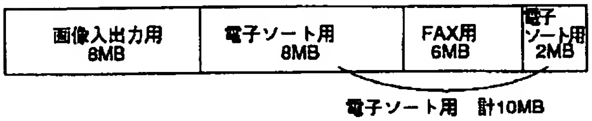

(a)
631
633
文書 1 名称アドレス
639
文書 2 名称アドレス
文書 m 名称アドレス
639
634
文書 1 管理アドレス
文書 2 管理アドレス
文書 m 管理アドレス
635
文書 1 属性情報
644
文書 2 属性情報
文書 m 属性情報
644
636
文書 1 名称
文書 2 名称
文書 m 名称
637
文書 1 ページ情報
641
文書 2 ページ情報
文書 m ページ情報
641
638
文書 1 オプション情報
643
文書 2 オプション情報
文書 m オプション情報
643
(b)
644
文書識別番号
650
文書登録日時
651
ページ数
652
原稿サイズ
653
文書属性
654

[Drawing 14]

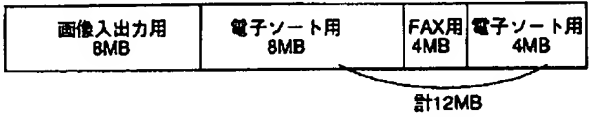
(1) 画像蓄積メモリの初期割当て例


画像入力または印刷用
ワークメモリ8MB
電子ソート蓄積用
8MB
FAX送受信蓄積用
8MB
A3、400dpi、1bit/画素2枚分

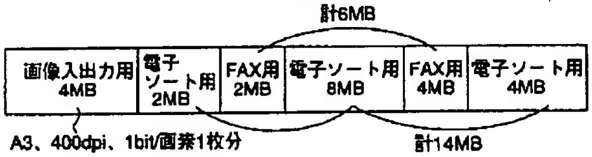
(2) 電子ソート蓄積メモリ不足、FAX用余裕時


画像入出力用
8MB
電子ソート用
8MB
FAX用
6MB
電子
ソート用
2MB
電子ソート用 計10MB

(3) さらに電子ソート用不足、FAX用余裕時

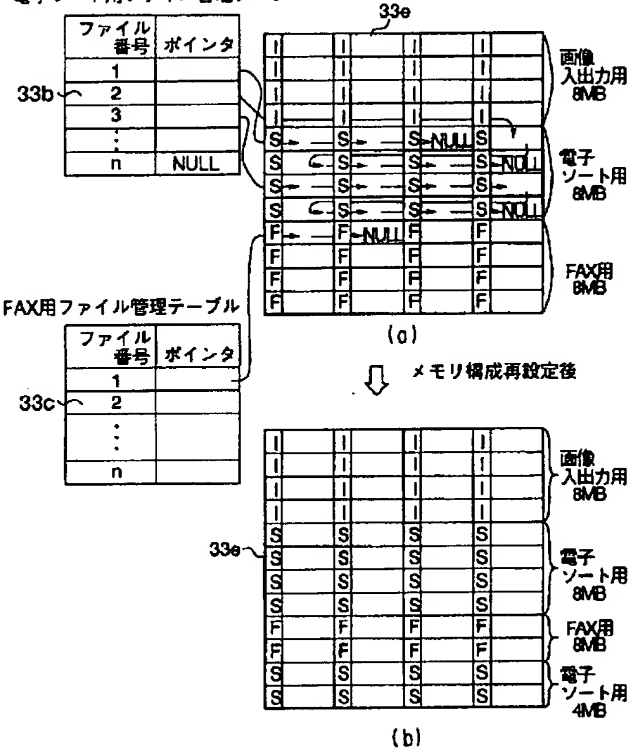

画像入出力用
8MB
電子ソート用
8MB
FAX用
4MB
電子ソート用
4MB
計12MB

(4) 電子ソート用さらに不足、FAX用不足時

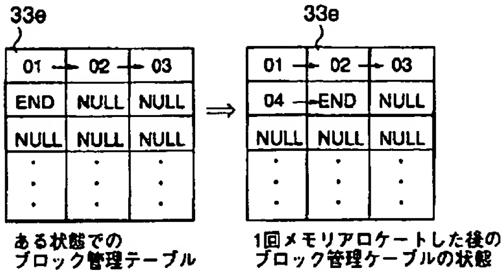

計6MB
画像入出力用
4MB
電子
ソート用
2MB
FAX用
2MB
電子ソート用
8MB
FAX用
4MB
電子ソート用
4MB
A3、400dpi、1bit/画素1枚分
計14MB

[Drawing 16]

電子ソート用ファイル管理テーブル

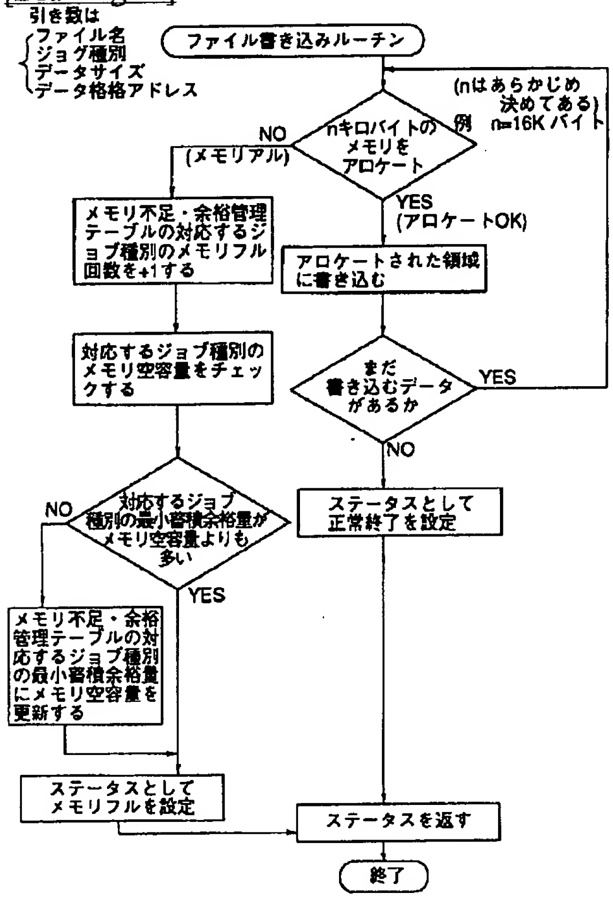

33e
ファイル番号
ポインタ
1
2
3
n
NULL
33b
I
S
F
NULL
画像入出力用
8MB
電子
ソート用
8MB
FAX用
8MB
FAX用ファイル管理テーブル
ファイル番号
ポインタ
1
2
n
33c
(a)
メモリ構成再設定後
33e
画像入出力用
8MB
電子
ソート用
8MB
FAX用
8MB
電子
ソート用
4MB
(b)

[Drawing 17]

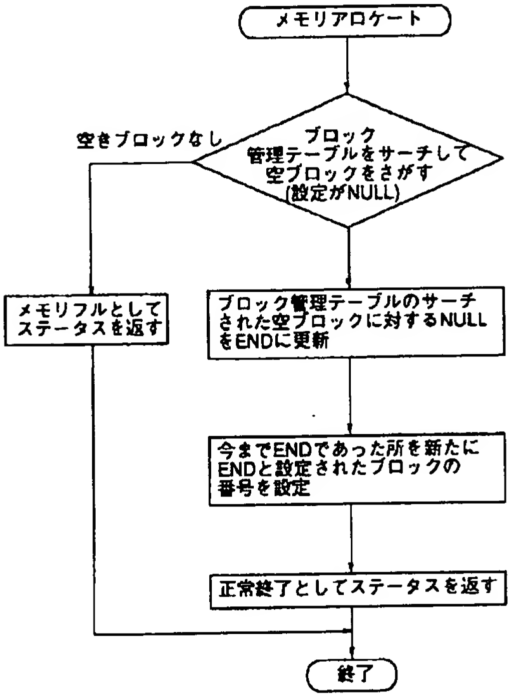

33e
01
02
03
END
NULL
NULL
NULL
NULL
NULL
ある状態での
ブロック管理テーブル
33e
01
02
03
04
END
NULL
NULL
NULL
NULL
1回メモリアロケートした後の
ブロック管理ケーブルの状態

(a) (b)

[Drawing 18]

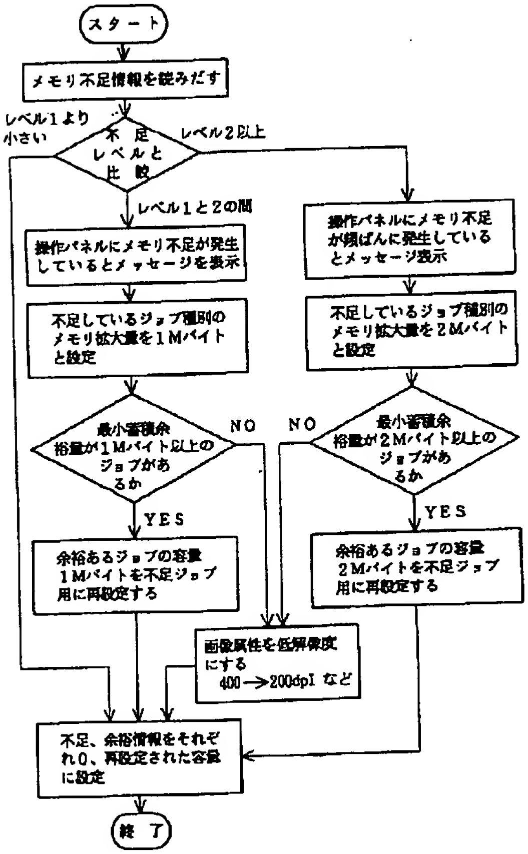

引き数は
ファイル名
ジョグ種別
データサイズ
データ格格アドレス
ファイル書き込みルーチン
(nはあらかじめ決めてある)
例 n=16Kバイト
nキロバイトのメモリをアロケート
NO
(メモリアル)
YES
(アロケートOK)
メモリ不足・余裕管理テーブルの対応するジョブ種別のメモリフル回数を+1する
アロケートされた領域に書き込む
対応するジョブ種別のメモリ空容量をチェックする
まだ書き込むデータがあるか
YES
NO
対応するジョブ種別の最小蓄積余裕量がメモリ空容量よりも多い
NO
YES
ステータスとして正常終了を設定
メモリ不足・余裕管理テーブルの対応するジョブ種別の最小蓄積余裕量にメモリ空容量を更新する
ステータスとしてメモリフルを設定
ステータスを返す
終了

[Drawing 19]


メモリアロケート
ブロック管理テーブルをサーチして空ブロックをさがす(設定がNULL)
空きブロックなし
メモリフルとしてステータスを返す
ブロック管理テーブルのサーチされた空ブロックに対するNULLをENDに更新
今までENDであった所を新たにENDと設定されたブロックの番号を設定
正常終了としてステータスを返す
終了

[Drawing 20]

メモリ容量再設定ルーチン


スタート
メモリ不足情報を読みだす
不足レベルと比較
レベル1より小さい
レベル2以上
レベル1と2の間
操作パネルにメモリ不足が発生しているとメッセージを表示
操作パネルにメモリ不足が頻ぱんに発生しているとメッセージ表示
不足しているジョブ種別のメモリ拡大量を1Mバイトと設定
不足しているジョブ種別のメモリ拡大量を2Mバイトと設定
最小蓄積余裕量が1Mバイト以上のジョブがあるか
NO
NO
最小蓄積余裕量が2Mバイト以上のジョブがあるか
YES
YES
余裕あるジョブの容量1Mバイトを不足ジョブ用に再設定する
余裕あるジョブの容量2Mバイトを不足ジョブ用に再設定する
画像属性を低解像度にする 400→200dpI など
不足、余裕情報をそれぞれ0、再設定された容量に設定
終了

[Translation done.]